



# Four all Seasons

**A Quarterly Newsletter from the Quad Cities  
National Weather Service Office**

Volume 1 Issue 1

*Premier Issue*

FALL 2001



## Welcome to Our Newsletter



By David Sheets

Welcome to the premier issue of *Four All Seasons*, an all new quarterly newsletter written by the staff of the National Weather Service office in Davenport, Iowa. Inside each issue you will find information relevant to Cooperative observers, weather spotters, our media partners, and weather enthusiasts across Eastern Iowa, Northwest Illinois, and Northeast Missouri.

One goal is to provide instructional material to aid cooperative observers and weather spotters. Another is to keep our readers informed of latest changes and happenings at the National Weather Service and how they impact our public service. Additionally, we will document significant weather and hydrological events, including severe thunderstorms, winter storms, and river flooding. We hope to also occasionally provide insight into the science of weather and river forecasting and severe weather prediction.

This is the online version of our newsletter. If you have received a printed version in the mail and find that this online version meets your needs, let us know and we will remove your name from our mailing list. This will enable us to save printing and postage expenses. Information on how to contact us can be found on the last page. Your input is welcome!

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## - COOP NEWS -

### **Who Are Cooperative Weather Observers, and What Do They Do?**

By Terry Simmons

Cooperative observers, the unsung heroes of our nation, form the backbone of the country's climatological data network. Observers are ordinary citizens who help their country by recording weather information each day. They work for little or no pay seven days a week, 365 days a year. The weather and river information provided by these volunteers is invaluable. Data from cooperative observers is used in a variety of ways. Some applications are seen in building codes and insurance rating tables, architecture, agriculture, commerce, engineering, aviation, industry, litigation, recreation and tourism, manufacturing, and research. On a daily basis, cooperative reports are extremely valuable in the forecasting and warning functions of the National Weather Service

There are four types of observation networks in the cooperative program. The basic climatic network, or "a" network, is used to describe the climate of the United States. These stations are selected for their spatial density. Criteria for establishing these sites was defined by a 1953 study. Many of these sites have at least 80 years of records. At a minimum these stations must observe 24 hour precipitation totals, however most of the stations also observe 24-hour maximum and minimum temperatures.

The "b" network is used primarily to support National Weather Service (NWS) hydrologic programs such as flood forecasting, hydrologic planning, water supply, etc. These stations nearly always report 24 hour

precipitation, and many include river stage or lake level. A few report max and min temperatures and the water equivalent of all snow on the ground.

The "ab" network station supports both the climatological and hydrological programs of the National Weather Service. They have the combined responsibilities of both the "a" and "b" networks. Cooperative stations in the "c" network support the meteorological rather than the climatological or hydrological programs of the NWS. Their data is used to support the issuance of warnings, forecasts, and public service programs based upon local and regional requirements. Besides the daily information coop sites provide, many of the stations in the "b" and "c" networks also provide real-time or semi-real-time data.

Record keeping is extremely important. The data collected by observers is sent to the National Climatic Data Center, river forecast centers, and others for use in forecasts, hydrologic models, and for weather research and support. Something as minor as a change in the time of a daily observation can cause fictitious changes in monthly average maximum and minimum temperatures.

Cooperative observers, through their daily observations and through their combined efforts for over 100 years, are heroes to their communities and to the nation. In future issues we hope to share your stories and the stories of other cooperative observer/heroes from around the country.

## Snowfall Reporting

By Andy Ervin

It's that time of year again, and the temperatures have already plunged below freezing a few times around the area. It's time to take a look at how you observe that white fluffy stuff that causes so many little problems. Your accurate observations are worth more than their weight in gold! By reporting snowfall, snow depth, and water equivalent, you not only save lives, but your local economy as well. Did you know that your observations are used by the state to determine which counties receive certain amounts of money for snow removal and road maintenance?

**Measuring snowfall:** You need to report daily snowfall every day at your observing time. This measurement is **only** the amount of snow that fell in the last 24 hours. It is measured to the tenth (0.1) of an inch. Snowfall will vary across small areas due to drifting in many cases. In this case, use your own judgement and measure in several places that minimize the affects of drifting. Your 24 hour snowfall needs to also be converted to liquid for your daily precipitation amount, just like you would if it had rained. You can do this by melting the fresh snow that fell into the outer can of your rain gauge, and measuring it, as if it were rainfall. Pour the liquid into the inner gauge can, and measure it to the nearest hundredth of an inch (0.01). If high winds result in less snow in the outer gauge can that actually fell, you need to cut a "biscuit" from the new snowfall with the outer gauge can, then measure the water equivalent of it.

**Snow depth:** Snow depth is the running total of how much snow is on the ground from day

to day. It is recorded everyday that there is any snow on the ground. Measurements are taken to the nearest **whole** inch. This means that you need a half inch or more to record an inch. If your depth is less than a half inch, you record a Trace, until all snow in your observing area is melted.

Here's a quick table to help keep track of what measurements are taken to levels of accuracy:

Type	~ Inch increment
Rainfall/Liquid equivalent	~0.01(hundredth)
Snowfall (past 24 hrs)	~ 0.1 (tenth)
Snow Depth(running total)	~ 1 (whole)

Snowfall reports are of extreme importance to your community and nation. This past snowy winter of 2000, record snowfall and snow depth observations were taken across our area. Climate records will forever show this. Snow depth observations taken through early spring, helped accurately predict the widespread snowmelt flooding along the Mississippi river valley.



Picture: Record snow depth observation at NWS Davenport, Dec. 25, 2000.

## NOAA Weather Radio Expansion

By Andy Ervin

Weather radio expansion has now extended to all areas of Eastern Iowa, Northwest and West-Central Illinois, Northeast Missouri, and Southwest Wisconsin! Early this fall, two more transmitters were activated to complete the coverage across our area. Just 3 short years ago, NOAA Weather Radio was only available to three areas in Eastern Iowa and Northwest Illinois that were near larger cities.

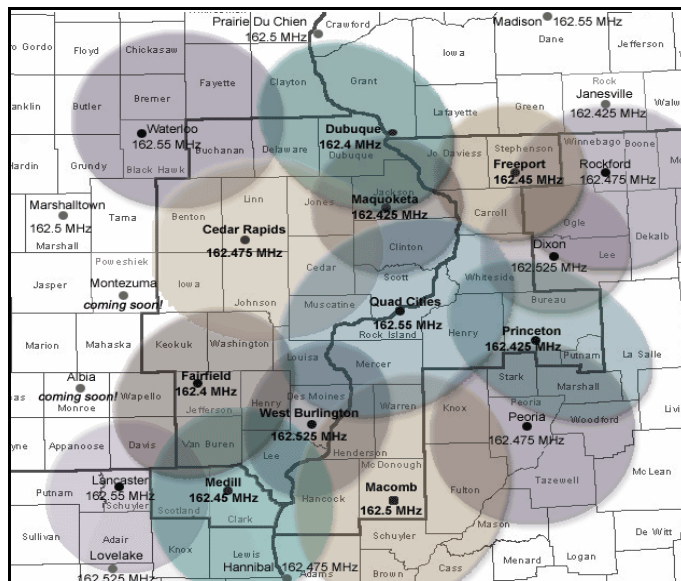
The two new transmitters are in Maquoketa, Iowa and Freeport, Illinois. Here is the specific information on them:

### Maquoketa

- ❄ Frequency: 162.425 MHz
- ❄ Station ID: KZZ-83
- ❄ Operated by: National Weather Service office out of Quad Cities.
- ❄ Covering these counties: In Iowa...Cedar, Clinton, Dubuque, Jackson, and Jones. In Illinois...Carroll and Jo Daviess.

### Freeport

- ❄ Frequency: 162.450 MHz
- ❄ Station ID: KZZ-56
- ❄ Operated by: National Weather Service office out of Quad Cities.
- ❄ Covering these counties: In Illinois...Carroll, Jo Daviess, Ogle, Stephenson, and Winnebago. In Wisconsin...Green and Lafayette.



For more complete information on any transmitter, please visit us on the web at:  
[www.crh.noaa.gov/dvn/wxradio/index.htm](http://www.crh.noaa.gov/dvn/wxradio/index.htm)

## New Wind Chill Index

By Donna Dubberke

On Tuesday, November 1, 2001, a new formula was put in place to calculate the wind chill. The latest advances in science, technology, and computer modeling have resulted in a significantly improved wind chill index. The new index provides a more accurate, understandable, and useful formula for evaluating the potential danger due to the combined effects of wind and cold temperatures. The Meteorological Services of Canada implemented this same new wind chill formula on October 2, 2001.

Specifically, the new wind chill index:

- ❄ Uses calculated wind speed at an average height of 5 feet (typical height of an adult human face). This wind speed is derived from the national standard height of 33 feet (height of a typical anemometer).
- ❄ Is based on a human face model.
- ❄ Incorporates modern heat transfer technology (i.e. heat loss from the body to its surroundings during cold and windy days).
- ❄ Lowers the “calm” wind threshold from 4 mph to 3 mph.
- ❄ Uses a consistent standard for skin tissue resistance.
- ❄ Assumes no impact from the sun.

A more detailed description of the new wind chill index, including a comparison graphic between the old and new formula and a wind chill calculator, can be found at: <http://www.nws.noaa.gov/om/windchill>



***Four all Seasons*** is a publication of the National Weather Service in Davenport Iowa.

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Comments and Suggestions Welcome!

**Quad Cities**  
National Weather Service

